

TECHNICAL WORK MAY NOT BEGIN PRIOR TO CTR ACCEPTANCE

NASA/GODDARD SPACE FLIGHT CENTER

REQUEST FOR TASK PLAN / TASK ORDER

CONTRACTOR	CONTRACT NO./TASK NO.	JOB ORDER NUMBER	APPROF. FY
QSS Group, Inc.	NASS- 99124 TASK NO. 131 AMENDMENT	563-839-30-63-89	99

TASK TITLE: (NTE 80 characters; include Project name)

NanoSat Power Supply Electronics (PSE) System Services

APPROVALS: (Type or print name and sign)

ASSISTANT TECHNICAL REPRESENTATIVE (OR TASK MONITOR)

Bob G. Beaman <i>Bob G. Beaman</i>	DATE 9/08/25	ORG CODE 563	MAIL CODE 563	PHONE 301-286-2538
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BRANCH HEAD

Marlon Enciso <i>Marlon R. Enciso</i>	DATE 8/27/99	CODE 563	PHONE 301-286-5845
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CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE (COTR)

Robert S. Lehair, Jr. <i>Robert S. Lehair, Jr.</i>	DATE 8/31/99	CODE 560	PHONE 301-286-6588
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FLIGHT HARDWARE, CRITICAL GSE OR SOFTWARE?

(IF YES, NEED CODE 303 CONCURRENCE NEXT BLOCK)

CONTRACTING OFFICER'S QUALITY REP.

DESIGNATED FAM:

☒ NO ☐ YES

Larry Moore

The contractor shall identify and explain the reason for any deviations, exceptions, or conditional assumptions taken with respect to this Task Order or to any of the technical requirements of the Task Order Statement of Work and related specifications. The contractor shall complete and submit the required Reps and Certs.

(To be completed by Contracting Officer)

C.O. Requested Quote on:

Date: AUG 31 1999

Contractor will develop specification or statement of work under this task for a future procurement. ☒ NO ☐ YES

Flight hardware will be shipped to GSFC for testing prior to final delivery. ☐ NO ☐ YES ☒ N/A

Government Furnished Property/Facilities: ☒ NO ☐ YES -- SEE LIST OF GFP (offsite only) / FACILITIES (onsite only)

Onsite Performance: ☒ NO ☐ YES If yes: ☐ TOTAL ☐ PARTIAL
If partial, indicate onsite work in SOW by asterisk (*)

Surveillance Plan Attached: ☒ NO ☐ YES

Highlighted Contract Clauses: (to be completed by Contracting Officer)

INCENTIVE FEE STRUCTURE (check one)

	<input checked="" type="checkbox"/> No. 1	<input type="checkbox"/> No. 2	<input type="checkbox"/> No. 3	<input type="checkbox"/> No. 4	<input type="checkbox"/> No. 5
Cost	10%	50%	25%	25%	%
Schedule	15%	25%	25%	50%	%
Technical	75%	25%	50%	25%	%

(To be completed by Contracting Officer)

The target cost of this task order is \$ _____.

The target fee of this task order is \$ _____.

The total target cost and target fee of this task order as contemplated by the Incentive Fee clause of this contract is \$ _____.

The maximum fee is \$ _____.

The minimum fee is \$0.

AUTHORIZED SIGNATURE:

THIS TASK ASSIGNMENT IS ISSUED ACCORDING TO THE CONTRACT CLAUSE "TASK ASSIGNMENTS AND REPORTS"

SIGNATURE OF CONTRACTING OFFICER

DATE

TYPED NAME OF CONTRACTING OFFICER

CONTRACTOR'S ACCEPTANCE:

AUTHORIZED SIGNATURE

DATE

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QSS Group, Inc.	NAS5- 99124	131	

Applicable paragraphs from contract Statement of Work: Function 2.D.7

STATEMENT OF WORK: (Continue on blank paper if additional space is required)

A stability analysis is needed for the NanoSat/ST5 type of EPS (Electrical Power System). This power system collects solar energy and provides electrical power for spacecraft use. Lilon Batteries will be charged for spacecraft use during eclipsed and/or for cases where the load exceed the solar array capability. The bus voltage on the primary side (Solar Array and Battery) will be limited by the battery requirement (8.2 volts). The load voltages may be either 3.3 volts for NanoSats for 5.0 volts for ST5.

The unique configuration of the power system calls for the solar array output to be connected to the batteries through a solar array regulator dedicated to battery cell charge control. This regulator will control the amount of current into the battery and consequently the battery voltage. Between the batteries and the load is a switching regular, which will tightly control the load voltages. Because the output of the solar array regulator is connected to the input of the switching regulator the power bus must be treated as a coupled system. The switching regulator loads down the solar array regulator, potentially affecting its relative stability. Likewise the solar array regulator affects the input characteristics of the switching regulator changing its system dynamics.

Because of these unique operations, the contractor shall be familiar with various stability features for the NanoSat program program.

Provide an analysis of the coupled dynamic characteristics of the power system to ensure that bus voltage remains stable under all operating conditions including battery charging and discharging. In cases for which bus stability is not guaranteed suggest modifications or design fixes, which will ensure stability. As part of the outcomes submit to NASA/GSFC a report detailing how the analysis was reached and conclusions. Include any and all programs and data files are used during the process.

PERFORMANCE SPECIFICATIONS:

The contractor shall deliver a interim and final report in a hard and soft ware copies with details reflecting the component characteristics used, schematic, initial parameters established and net work (node list or net list), if applicable. A P-Spice software version of the stability analysis shall also be provided.

APPLICABLE DOCUMENTS:

Evaluation, reports, and inputs to be based on all applicable NanoSat Spacecraft Performance and Verification Documents.

TASK END DATE: 1/1/00**MILESTONES/DELIVERABLES AND DATES:**

Summary Report on PSE Issues/Status (interim report)	October 15, 1999
Summary Report on PSE Issues/Status (final report)	December 15, 1999
Quarterly Progress Reports	Quarterly, beginning Sept 1, 1999

PERFORMANCE STANDARDS:

Schedule: On-time delivery of the above.
Technical: ATR's acceptance of the above.

FINAL DELIVERY DESTINATION (NAME, BLDG, ROOM):

Bob Beaman, building 20, room 170